



Rational software

IBM Rational Business Developer Extension

Highlights

- ***Helps accelerate delivery of Web and SOA systems with a simplified development environment***
- ***Helps eliminate skills silos and achieve new levels of flexibility and responsiveness through a unified, easy-to-learn programming approach***
- ***Enables you to build innovative, modern solutions with minimal developer retraining, and helps guard against technology changes***
- ***Helps reduce IT costs with higher developer productivity and easy reuse and extension of legacy assets***

IBM® Rational® Business Developer Extension software helps IT organizations build innovative IT solutions while controlling costs, reducing application backlogs and improving flexibility and responsiveness to the business. Using Rational Business Developer Extension, you can achieve increased levels of application development productivity and enable business-savvy developers to exploit emerging computing technologies to fulfill new and changing business requirements with minimal retraining costs and time. Rational Business Developer Extension allows you to easily reuse and leverage valuable existing IT assets.

Extending IBM development solutions—such as IBM Rational Application Developer software, IBM Rational Software Architect software, IBM WebSphere® Developer software for IBM System z™ hardware, and IBM WebSphere Development Studio Client software—Rational Business Developer Extension is the component of the IBM Rational Software Delivery Platform that's specifically designed to fulfill the needs of business-oriented developers. The product provides a comprehensive development workbench for the IBM Rational Enterprise Generation Language (EGL), a powerful, easy-to-learn and highly productive modern

language that equips developers of almost any background with a simplified and more abstract development paradigm that allows them to quickly deliver cross-platform, transactional data-centric services and applications. As a business programming language, EGL is designed to let you write full-function applications quickly and independently from the target run-time platform, freeing you to focus on business problems rather than complex software technologies. For example, it hides the Java™ and Java Platform, Enterprise Edition (Java EE) details, the Web services standards and the enabling middleware, so you can deliver enterprise data to employees, customers and partners through Web browsers with minimal Web technology experience.

Empowers developers

IBM Rational Business Developer Extension provides state-of-the-art tools that allow developers direct access to a broad range of Enterprise Generation Language (EGL) construction, test/debug, and deployment tools,

helping to enable IT organizations to create Web, Web service, batch, character-based and graphical UI applications quickly and easily. IBM Rational Business Developer Extension includes a generation engine that transforms the EGL source into Java or COBOL code optimized for deployment to a broad variety of application hosting environments including J2EE servers (WebSphere, Apache Tomcat, etc.) and traditional transactional systems such as System z Customer Information Control System (CICS) or System i i5OS.

EGL hides the details of the target execution platforms and associated middleware, freeing you to focus on the business problem rather than on the underlying implementation technologies. Developers who have little or no experience with Java and Web technologies, but have procedural programming skills and valuable business domain expertise, can use EGL to create enterprise-class services and applications quickly and easily.

And developers with little or no experience with mainframe programming can quickly create highly optimized System z or System i services and applications, so you can create a flexible pool of development resources that are portable and adaptable across projects and platforms. EGL empowers this broader class of developers with abilities to:

- *Build Java/Java EE code-based applications without having a deep knowledge of the underlying technology.*
- *Deliver applications based on industry standards that interoperate with existing systems.*
- *Adopt service orientation without extensive knowledge of SOA-supporting technologies and standards.*
- *Reduce training costs.*
- *Achieve the highest level of productivity while leveraging the latest platforms and technologies.*
- *Reduce application errors through abstraction, code generation and automation.*
- *Deploy to all IBM platforms.*

Although EGL applications developed using IBM Rational Business Developer Extension are optimized for IBM WebSphere software, they support multivendor run-time environments.

IBM Rational Business Developer Extension is powered by the Eclipse open source platform; therefore, it allows you to adapt and extend your development environment to match your needs, and it plugs in seamlessly to the IBM Rational Software Delivery Platform to provide comprehensive lifecycle support for EGL development projects.

Reduce complexity and cost

Regardless of your background as a developer, you can use IBM Rational Business Developer Extension and EGL to quickly generate applications and services that will deploy natively to the broadest variety of platforms. EGL is uniquely designed to address

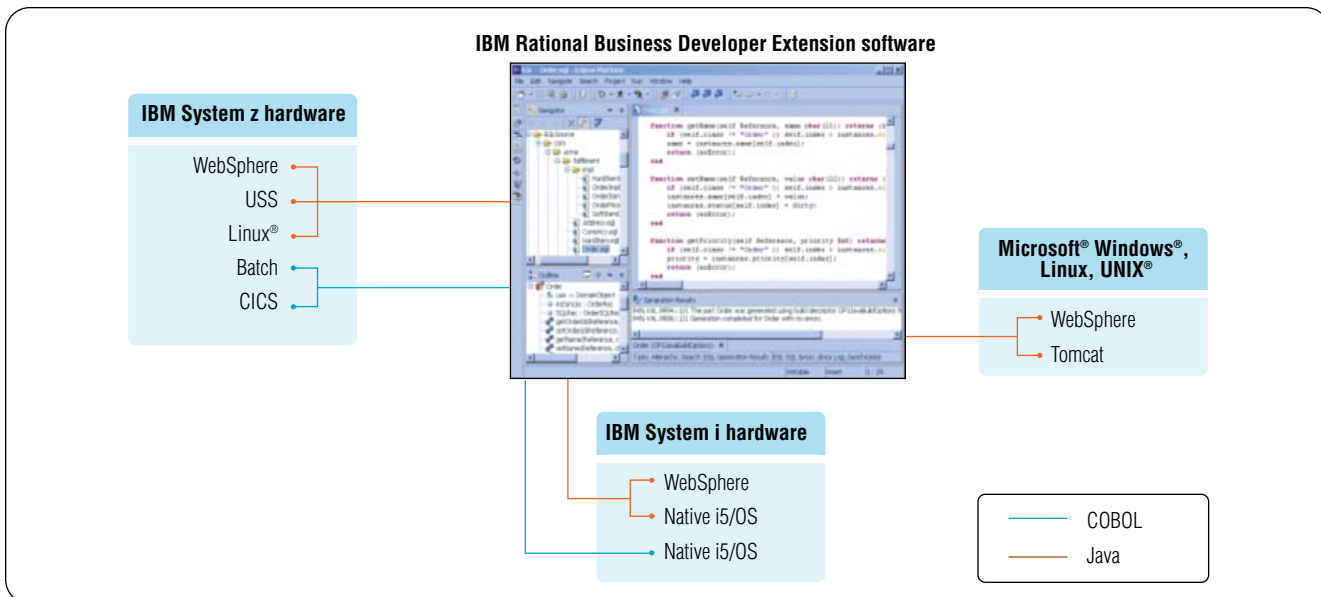
a full spectrum of business application requirements by allowing development of:

- **Business services.** *The language includes the built-in notion of “service,” allowing you to create and consume services in an extremely simple and straightforward way, and to permeate systems architecture with service orientation.*
- **Web applications.** *Tight integration of EGL with the JavaServer Faces (JSF) framework and JSF tooling enables you to create Web applications in a simple and productive way, without your needing to know Java or the details of the JSF framework.*
- **Reports.** *EGL integration with the Jasper Reports, an open source reporting engine, allows you to create professional reports.*
- **Batch systems.** *The language includes the built-in notion of “batch program,” which can be generated to run without end-user interaction; for example, for reports production or for batch database load/update.*

- **Simple GUI applications.** *In addition to the Java Visual Editor application, which supports development of Standard Widget Technology (SWT) and Swing clients, Rational Business Developer Extension also includes EGL support for defining and running a simplified GUI client mode.*

IBM Rational Business Developer Extension empowers business-oriented developers to be extremely productive quickly as a result of the following capabilities:

- **Abstraction.** *EGL provides concise and powerful notations that eliminate the tight coupling and reduce the amount of coding required to interface systems and middleware. This abstraction can significantly simplify and speed up developers’ work.*
- **Declarative programming.** *EGL includes, where possible and appropriate, a certain level of declarative specifications aimed at reducing repetitive and error-prone coding. For example, by associating a validation rule to a data item, every time the item is used in a certain context, the validation is automatically applied and enforced.*



IBM Rational Business Developer Extension is a highly productive development environment, tightly integrated with IBM Rational solutions. EGL increases productivity with language abstraction and simplicity, as well as the flexibility of deployment to multiple platforms.

- Language.** EGL provides a comprehensive but easy-to-learn language notation that's modern and modular. And it includes a rich library of built-in functions to boost your productivity for commonly required operations, such as date and time math, string manipulation and more. Additionally, the language is extensible and offers full interoperability with other languages; in particular, it provides EGL interfaces to native Java code.
- Generation.** Although simplified, the EGL development technology must still guarantee optimal deployment to the run-time platforms to take advantage of their qualities of service and to allow native management and monitoring of the systems in operation. This is accomplished through a code generation engine included within Rational Business Developer Extension that transforms the EGL specification into native Java or COBOL source, and creates any other required deployment artifacts.
- Tools.** To further boost developers' productivity, Rational Business Developer Extension includes a rich set of tools built upon the Eclipse integrated development environment (IDE) framework. These include EGL source animation for debugging; powerful smart editing; visual construction; graphical navigation; and specialized capabilities such as tight integration of EGL notations with graphical Web development tooling and automatic transformation of Unified Modeling Language (UML) models or database schemas into completely functional EGL services and applications.

- *SOA. EGL has been designed from the ground up to facilitate services development and deployment. A simplified and abstracted SOA development paradigm has been built into the language itself, and it's complemented by tools and generation that are consistent with the basic tenets of the power of EGL. No matter what your skill level, you can easily create services without needing to know Web service protocols and standards.*

Extends the capabilities of other

Rational products

IBM Rational provides a portfolio of software development solutions for organizations looking to effectively meet growing business needs by cutting development costs and delivery timeframes while improving quality.

IBM Rational Business Developer Extension and IBM Rational Application Developer software

This combination is primarily for customers who deploy to the WebSphere Application Server platform. This combination adds,

among other valuable features, WebSphere Application Server and WebSphere Portal test environments and integration. It also includes comprehensive Web services tools, including the Web Services Explorer.

IBM Rational Business Developer Extension and IBM Rational Software Architect software

This combination is for model-driven development scenarios and includes all functionality provided by Rational Application Developer. It encompasses all aspects of application design and development, including tools to create UML models, transform these models to EGL, deploy to the included WebSphere Application Server test environment, and test the generated applications in the test environment.

IBM Rational Business Developer Extension and IBM WebSphere Developer for System z software

This combination is for System z customers whose developers work in EGL as well as other programming languages (e.g., COBOL, Programming Language One [PL/I]), and who

can benefit from a unified workbench. Typically EGL will be used for new development, especially Web applications, and to create business services for SOA solutions. It can also be used for extending and modernizing existing COBOL or other legacy programs.

IBM Rational Business Developer Extension and IBM WebSphere Development Studio Client for System i software (standard or advanced edition)

This combination is targeted to System i customers whose developers work in EGL as well as with other programming languages (e.g., RPG, COBOL), and who can benefit from a unified workbench. Typically EGL will be used for new development, especially Web applications, and to create business services for SOA solutions. It can also be used for extending and modernizing existing RPG or COBOL legacy programs.

Features and benefits of IBM Rational Business Developer Extension software

Feature	Benefit
Simplified creation and consumption of Web services and native services	EGL's built-in service construct and service generation facility allow business-oriented developers to create SOA-based applications without extensive training.
Model-driven development with UML and database schemas	UML-to-EGL transformations (for the IBM Rational Business Developer Extension and IBM Rational Software Architect combination) allow architects to model complex applications graphically and implement EGL services or full create, read, update and delete (CRUD)-capable applications with no manual coding, increasing productivity and reducing errors. Automated transformation is also possible starting from relational database schemas.
Eclipse-based EGL IDE with powerful editing, code templates, code completion, refactoring, browsing, searching, etc.	Advanced development environment features create a high-productivity environment for EGL coding.
Familiar programming model using EGL development and generation capabilities	EGL is easily adopted by business-oriented developers, reducing learning curves and training expenses.
Single development and code generation environment for a broad variety of target platforms	Support for multiple target platforms allows you to work within the same IDE, leveraging development skills across platform boundaries.
Quality of generated code	EGL code generation automates the creation of repetitive and commonly needed application infrastructure coding, with a significant reduction in manually injected errors.
JSF page development, dynamic modification of JSF control properties, and integration of EGL control and logic behind JSF pages	EGL provides state-of-the-art Web development tools that support all levels of user interaction, thus affording higher productivity and reduced skills for creating sophisticated web solutions.
Use of abstraction and no application infrastructure coding	EGL hides the arcane implementation details of the infrastructure so you can concentrate on business logic and solving business problems, and by generating most of the "plumbing" code, EGL increases developer productivity.
Creation of batch applications	EGL supports the development of batch programs that require no user interaction. This increases the flexibility of the array of solutions and responsiveness to business requirements.
Powerful interactive EGL source-level debugger with the ability to invoke local or remote external programs and access to remote databases	EGL promotes agile and iterative development, shortening the development cycle and increasing developer productivity by removing the need to deploy the generated code to identify application or service logic problems.
Easy access to legacy data; the ability to call programs in legacy environments; the ability to migrate a fourth-generation programming language (4GL) environment to EGL	A leave-and-leverage approach can be taken when addressing legacy code, since EGL can coexist and easily call out to these applications. If required, older 4GL code can be migrated to EGL, which allows you to deploy the application to the most appropriate environment (e.g., Java/Java EE or COBOL). In addition, support is provided for legacy databases such as mainframe Virtual Storage Access Method (VSAM) fields and Data Language/1(DL/1) hierarchical databases—programming data access and connecting databases are time-consuming tasks, but EGL simplifies these tasks by giving greater flexibility and productivity to the programmer.

Specifications

Software requirements

IBM Rational Business Developer Extension is installed into one of the following required products:

- IBM Rational Application Developer, Version 7
- IBM Rational Software Architect, Version 7
- IBM WebSphere Development Studio Client for System i, Version 7 (standard or advanced edition)
- IBM WebSphere Developer for System z, Version 7

Hardware requirements

Operating systems/processor/memory

The requirements are the same as the host offering into which the extension is installed. Please see the data sheets and/or the Web pages for the following products for complete requirements:

- IBM Rational Application Developer, Version 7
- IBM Rational Software Architect, Version 7
- IBM WebSphere Development Studio Client for System i, Version 7 (standard or advanced edition)
- IBM WebSphere Developer for System z, Version 7

Disk space

These requirements are in addition to the disk space requirements for the host offering into which the extension is installed. Minimum 150MB of disk space is required for product package installation. Additional disk space is required for the resources that you develop.

- Additional disk space is required if you download the product package to install this product.
- For Microsoft Windows operating systems: Additional disk space is required if you use the Filesystem 32 (FS32) instead of the NT Filesystem (NTFS).
- For Microsoft Windows operating systems: An additional 100MB of disk space is required in the directory referenced by the TEMP environment variable.
- For Linux operating systems: An additional 100MB of disk space is required in the /tmp directory.

Software integrations

- IBM Rational ClearCase® software: On Windows 2002, 2003 SR3 or later; on Linux 2003 SR3 or later
- IBM Rational ClearQuest® software: 2003 SR3 or later
- Concurrent Versions System (CVS), 1.11.1p1
- IBM Rational Unified Process® (IBM RUP®): 2003 SR3 or later

IBM Rational Business Developer Extension generates COBOL code that can be deployed to the following environments:

- IBM z/OS®, Version 1.6 or later: batch or CICS
- IBM i5/OS, Version 5.3 or later

IBM Rational Business Developer Extension generates Java code that can be deployed to the following environments:

- z/OS, Version 1.6 or later: Web applications require WebSphere Application Developer for z/OS software
- IBM i5/OS, Version 5.3 or later: Web applications require WebSphere Application Server, Version 5.1.2 or later
- IBM AIX®, Version 5.2: Web applications require WebSphere Application Server, Version 5.1.2 or later, or Apache Tomcat 5.5 or later
- Windows 2000, 2003 or XP: Web applications require WebSphere Application Server, Version 5.1.2 or later, or Apache Tomcat 5.5 or later
- Linux (Red Hat 3 or higher, SUSE 9): Web applications require WebSphere Application Server, Version 5.1.2 or later, or Apache Tomcat 5.5 or later
- Hewlett-Packard UNIX 11iv2: Web applications require WebSphere Application Server, Version 5.1.2 or later, or Apache Tomcat 5.5 or later
- Sun Microsystems Solaris 9 or later: Web applications require WebSphere Application Server, Version 5.1.2 or later, or Apache Tomcat 5.5 or later

Supported Databases:

- IBM DB2®, Version 7 and later
- IDS 7.3 and later
- Oracle 8 and later
- SQL Server 2000
- Derby 10
- VSAM

For more information



To learn more about IBM Rational Business Developer Extension software or EGL, visit:

ibm.com/software/awdtools/developer/business

or

ibm.com/developerworks/rational/products/egl

To download evaluation copies of the products described above, visit:

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